

CLAIMS

What is claimed is:

1. A refrigerator, comprising:
 - a cabinet defining a storage compartment therein;
 - a top projection part formed by projecting a rear portion of a top of the cabinet upward, the top projection part defining an air cooling chamber therein such that the air cooling chamber extends upward from an upper portion of the storage compartment; and
 - a machine room located in the top of the cabinet at a position in front of the top projection part, and receiving a compressor and a condenser therein.
2. The refrigerator according to claim 1, wherein the air cooling chamber comprises:
 - an evaporator to produce cool air; and
 - a cool air circulation fan to circulate the cool air.
3. The refrigerator according to claim 2, wherein the air cooling chamber further comprises:
 - an air path partition plate that is spaced apart from an upper surface of the air cooling chamber, and partitions the air cooling chamber into a front space part and a rear space part, wherein the evaporator and the cool air circulation fan are installed in the rear space part.
4. The refrigerator according to claim 3, wherein:
 - the cool air circulation fan is installed above the evaporator to blow the cool air, produced by the evaporator, into the front space part.
5. The refrigerator according to claim 4, wherein:
 - the cool air circulation fan longitudinally extends in the air cooling chamber.
6. The refrigerator according to claim 4, wherein the cool air circulation fan comprises a cross flow fan.

7. The refrigerator according to claim 3, further comprising:

an air suction guide member, mounted to a rear surface of the storage compartment and spaced apart from the rear surface of the storage compartment, thereby defining an air path to guide air from the storage compartment into the rear space part of the air cooling chamber, and having a plurality of air suction ports; and

an air exhaust guide member mounted to an upper surface of the storage compartment and spaced apart from the upper surface of the storage compartment, and having a plurality of air exhaust ports to discharge the cool air from the front space part of the air cooling chamber into the storage compartment.

8. The refrigerator according to claim 2, wherein the machine room comprises:

a machine room casing, having

a housing mounted to the top of the cabinet to cover an upper surface and both side surfaces of the machine room, and

a cover member hinged to the housing to open and close a front of the housing.

9. The refrigerator according to claim 8, wherein:

the cover member is provided with a plurality of vent holes.

10. The refrigerator according to claim 1, wherein the machine room comprises:

a cooling fan to cool the compressor and the condenser.

11. The refrigerator according to claim 1, wherein:

the top projection part is integrally formed with the cabinet.

12. A refrigerator, comprising:

a cabinet defining a freezer compartment and a refrigerator compartment therein, such that the freezer and refrigerator compartments are placed side-by-side with each other in the cabinet and partitioned from each other;

a top projection part formed by projecting a rear portion of a top of the cabinet upward, the top projection part defining a first air cooling chamber for the freezer compartment and a second air cooling chamber for the refrigerator compartment therein, such that the first and second air cooling chambers extend upward from upper portions of the freezer and refrigerator compartments, respectively; and

a machine room defined on the top of the cabinet at a position in front of the top projection part, and having a compressor and a condenser therein.

13. The refrigerator according to claim 12, wherein each of the first and second air cooling chambers comprises:

an evaporator; and
a cool air circulation fan.

14. The refrigerator according to claim 13, wherein:

each of the first and second air cooling chambers for the freezer and refrigerator compartments is partitioned into a front space part and a rear space part by an air path partition plate; and

each of the evaporators is installed in the rear space part of the corresponding first and second air cooling chambers.

15. The refrigerator according to claim 13, wherein the cool air circulator fan comprises:
a cross flow fan.

16. The refrigerator according to claim 14, further comprising:

air suction guide members, mounted respectively to a rear surface of each of the freezer and refrigerator compartments, while being spaced apart from the rear surface of each of the freezer and refrigerator compartments, each air suction guide member having a plurality of air suction ports, thereby guiding air from each of the freezer and refrigerator compartments respectively, into the rear space part of each of the first and second air cooling chambers; and

air exhaust guide members, mounted respectively to an upper surface of each of the freezer and refrigerator compartments while being spaced apart from the upper surface of each of the freezer and refrigerator compartments, each air exhaust guide member having a plurality of air exhaust ports, thereby uniformly discharging the cool air from the front space part of each of the first and second air cooling chambers respectively, into each of the freezer and refrigerator compartments.

17. The refrigerator according to claim 12, wherein the cabinet comprises:

an inner casing;

an outer casing; and

a thermal insulation material interposed between the inner and outer casings.

18. The refrigerator, according to claim 17, wherein the inner casing comprises:

two integrated bodies, respectively defining the freezer and refrigerator compartments.

19. The refrigerator according to claim 17, wherein the outer casing comprises:

two side panels that form two side surfaces of the cabinet;

two rear panels assembled with each other, and assembled with the two side panels, to form a rear surface of the cabinet;

a top panel to form a top surface of the cabinet; and

a bottom panel to form a bottom surface of the cabinet.

20. The refrigerator according to claim 19, wherein:

first and second locking parts are positioned along facing edges of each of the two side panels and the two rear panels, respectively;

each first locking part has a longitudinal groove; and

each second locking part has a longitudinal projection that locks in the longitudinal groove of the corresponding first locking part, to join the two rear panels, and join the two side panels to the two rear panels.

21. The refrigerator according to claim 19, wherein a grooved reinforcing part is longitudinally formed along at least one of the two rear panels, thus reinforcing the rear panels.

22. The refrigerator according to claim 19, wherein the top panel is stepped to form the top projection part.

23. The refrigerator according to claim 18, wherein the inner casing further comprises:
two chamber casings, the two chamber casings being produced separately from the two integrated bodies, and being installed at the rear portion of the top of the cabinet, such that the two chamber casings are respectively positioned above the freezer and refrigerator compartments, to define the first and second air cooling chambers.

24. A refrigerator, comprising:
a cabinet with a storage compartment therein;
an air cooling chamber located at an upper portion of the storage compartment, and communicating with the storage compartment; and
a machine room, located on a top of the cabinet, and having a compressor and a condenser therein.

25. A refrigerator, comprising:
a cabinet with first and second storage compartments therein;
first and second air cooling chambers located at an upper portion of the storage compartment, and communicating respectively with the first and second storage compartments;
and
a machine room, located on a top of the cabinet, and having a compressor and a condenser therein.

26. The refrigerator according to claim 25, wherein:
the first and second air cooling chambers are respectively located at rear portions of the first and second storage compartments.

27. The refrigerator according to claim 25, wherein
the first and second air cooling chambers are disposed horizontally in the upper portion of the storage compartment.

28. The refrigerator according to claim 25, wherein:

the first storage compartment is a freezer compartment; and
the second storage compartment is a refrigerator compartment.

29. The refrigerator according to claim 25, wherein each air cooling chamber comprises:

an evaporator; and
a cool air circulation fan.

30. The refrigerator according to claim 29, wherein:
a flow of air past the cool air circulation fan is a laminar flow.

31. The refrigerator according to claim 29, wherein:
the cool air circulation fan is a cross flow fan.

32. The refrigerator according to claim 25, wherein the machine room comprises:
a cooling fan.

33. The refrigerator according to claim 25, wherein:
the machine room is located at a front portion of the cabinet.

34. The refrigerator according to claim 33, wherein:
atmospheric air circulates into the machine room.

35. The refrigerator according to claim 34, wherein:
atmospheric air circulates into the machine room from a front of the cabinet.

36. The refrigerator according to claim 32, wherein:
the cooling fan is disposed between the compressor and the condenser to cool the
compressor and the condenser.

37. The refrigerator according to claim 28, wherein the cabinet comprises:
an inner casing;
an outer casing; and

a thermal insulator interposed between the inner and outer casings.

38. The refrigerator according to claim 37, wherein:
the thermal insulator is a thermal insulation foam.

39. The refrigerator according to claim 37, wherein the inner casing comprises:
a first inner casing part defining the freezer compartment; and
a second inner casing part defining the refrigerator compartment.

40. The refrigerator according to claim 39, wherein:
the first and second inner casing parts are integrally formed.

41. The refrigerator according to claim 37, wherein the outer casing comprises:
first and second side panels;
first and second rear panels;
a top panel; and
a bottom panel.

42. The refrigerator according to claim 41, wherein a first joint where the first and second rear panels join comprises:

a first locking part with a longitudinal groove located on an edge of one of the first and second rear panels; and

a second locking part with a longitudinal projection that corresponds to and engages the longitudinal groove of the first locking part, located on an edge of the other of the first and second rear panels.

43. The refrigerator according to claim 42, wherein a second joint where the first side panel joins the first rear panel comprises:

a first locking part with a longitudinal groove located on an edge of one of the first side panel and the first rear panel; and

a second locking part with a longitudinal projection that corresponds to and engages the longitudinal groove of the first locking part, located on an edge of the other of the first side panel and the first rear panel.

44. The refrigerator according to claim 43, wherein a third joint where the second side panel joins the second rear panel comprises:

a first locking part with a longitudinal groove located on an edge of one of the second side panel and the second rear panel; and

a second locking part with a longitudinal projection that corresponds to and engages the longitudinal groove of the first locking part, located on an edge of the other of the second side panel and the second rear panel.

45. The refrigerator according to claim 41, wherein:

a grooved reinforcing part is located on at least one of the first and second rear panels to reinforce the rear panels.

46. The refrigerator according to claim 39, wherein:

the first inner casing part comprises a first chamber casing defining the first air cooling chamber; and

the second inner casing part comprises a second chamber casing defining the second air cooling chamber.

47. The refrigerator according to claim 46, wherein:

the first and second chamber casings are integrally formed with the first and second inner casing parts, respectively.

48. A refrigerator, comprising:

a mechanical cooling system located at a top of the refrigerator.

49. A refrigerator, comprising:

a cabinet with a refrigerator compartment and a freezer compartment; and

a machine room located at a top of the cabinet to enlarge storage spaces of lower sections of the respective refrigerator and freezer compartments.

50. A refrigerator, comprising:

a cabinet;

a plurality of air cooling chambers located at a rear portion of a top of the cabinet, each having an evaporator; and
a machine room located at a front portion of the top of the cabinet.